

1966 OPERATING SUMMARY

FORT FRANCES

water pollution control plant

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W38
1966
MOE

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ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

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ONTARIO WATER RESOURCES COMMISSION

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COMMISSION SECRETARY

Members of the Fort Frances Local Advisory Committee,
Town of Fort Frances.

Gentlemen:

We are pleased to submit to you the 1966 Operating Summary for the
Fort Frances Water Pollution Control Plant, OWRC Project No. 60-S-59.

It is hoped that our joint participation in efforts to combat water pollution
will have even more success in the coming year.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", is written over the typed name.

D. S. Caverly,
General Manager.

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ONTARIO WATER RESOURCES COMMISSION
OFFICE OF THE GENERAL MANAGER

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am happy to present you with the 1966 Operating Summary for the Fort Frances Water Pollution Control Plant, OWRC Project No. 60-S-59.

The report offers a concise summary of operating data for the year and comparisons with previous years where these are applicable and significant.

Yours very truly,

A handwritten signature in cursive script, appearing to read "B. C. Palmer".

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary contains complete information on the management of the project during 1966. It contains a concise review of the year's plant operation, significant financial details, and a visual presentation in graphs and charts of technical performance.

The information will be of value to interested parties in assessing the adequacy of the project at this time and its ability to meet future requirements.

The report is the result of co-operation by several groups within the Division of Plant Operations. These include the statistics section and the technical publications section. The Division of Finance and the draughting section of the Division of Sanitary Engineering were also closely associated with its publication.

The Regional Operations Engineer, however, has had the primary responsibility for the content, and will be happy to answer any questions regarding it.

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FORT FRANCES

water pollution control plant

operated for
THE TOWN OF FORT FRANCES

by
THE ONTARIO WATER RESOURCES COMMISSION

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'66 REVIEW

The average flow for 1966 was 2.1 mgd. This represents an increase of 8.8% over the ten-month average flow in 1965. During 1966 the plant operated at very slightly over its daily design flow resulting in a lower cost per million gallons treated.

The plant received eight-hour supervision 365 days a year. It is staffed by a Chief Operator and two operators.

Operating difficulties were again incurred by a break in the water main leading to the plant.

The operations engineer and his assistant made regular inspections of the plant throughout the year.

There was one L. A. C. meeting and several contacts with the Town Clerk-Treasurer.

PROJECT COSTS

NET CAPITAL COST	\$1,897,138.42
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DEDUCT - Portion Financed by CMHC (Estimated)	1,249,176.99
--	--------------

Long Term Debt to OWRC	\$ <u>647,961.43</u>
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Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966	\$ <u>36,684.46</u>
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Net Operating	\$ 32,057.25
---------------	--------------

Debt Retirement	12,536.00
-----------------	-----------

Reserve	12,399.62
---------	-----------

Interest Charged	33,701.93
------------------	-----------

TOTAL	\$ <u>90,694.80</u>
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RESERVE ACCOUNT

Balance at January 1, 1966	\$ 22,715.38
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Deposited by Municipality	12,399.62
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Interest Earned	<u>1,419.77</u>
-----------------	-----------------

	\$ 36,534.77
--	--------------

Less Expenditures	<u>2,853.00</u>
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Balance at December 31, 1966	\$ <u>33,681.77</u>
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MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	1993.04	1216.58	219.64	422.82		57.96			44.54	31.50
FEB	2199.77	1173.98		422.81		59.08	8.44	82.14	428.32	25.00
MARCH	2594.92	1243.45	646.05	376.16		153.13		61.90	89.23	25.00
APRIL	3322.31	1846.17	200.72	523.91		57.84	80.83	274.76	313.08	25.00
MAY	2398.45	1216.58		196.34	395.72	156.04	242.96	1.19	189.62	
JUNE	2928.04	1325.13	407.10	704.70	26.39	297.57	6.36		110.79	50.00
JULY	2182.19	1201.22		433.07	395.72	114.70		2.29	10.24	25.00
AUG	2433.16	1355.93		177.39	791.44	20.62			87.78	
SEPT	2911.76	1867.71		631.31		230.28		26.95	105.51	50.00
OCT	3331.72	1292.85	335.06	383.45	395.72	23.50		69.72	806.42	25.00
NOV	2013.05	1304.25		446.63		149.07		88.10		25.00
DEC	3748.84	1300.76	773.49	410.67	190.19	294.01	59.20	26.22	669.30	25.00
TOTAL	32057.25	16344.61	2582.06	5129.21	2195.18	1613.80	397.79	633.27	2854.83	306.50

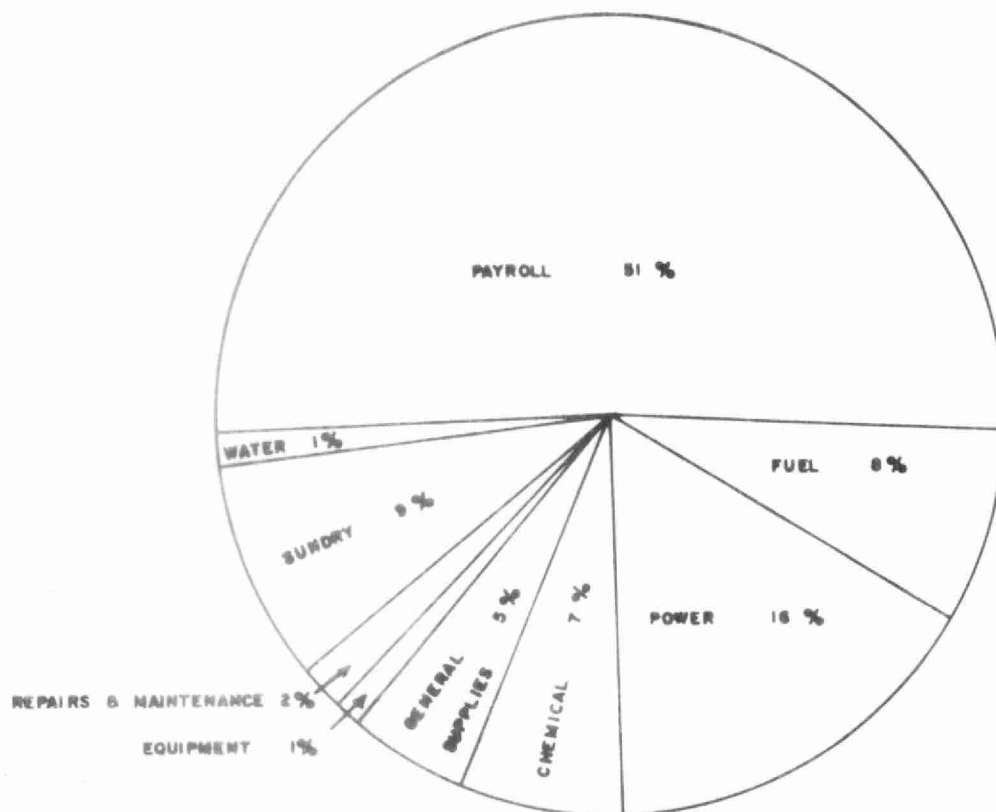
* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$992.00

YEARLY OPERATING COSTS

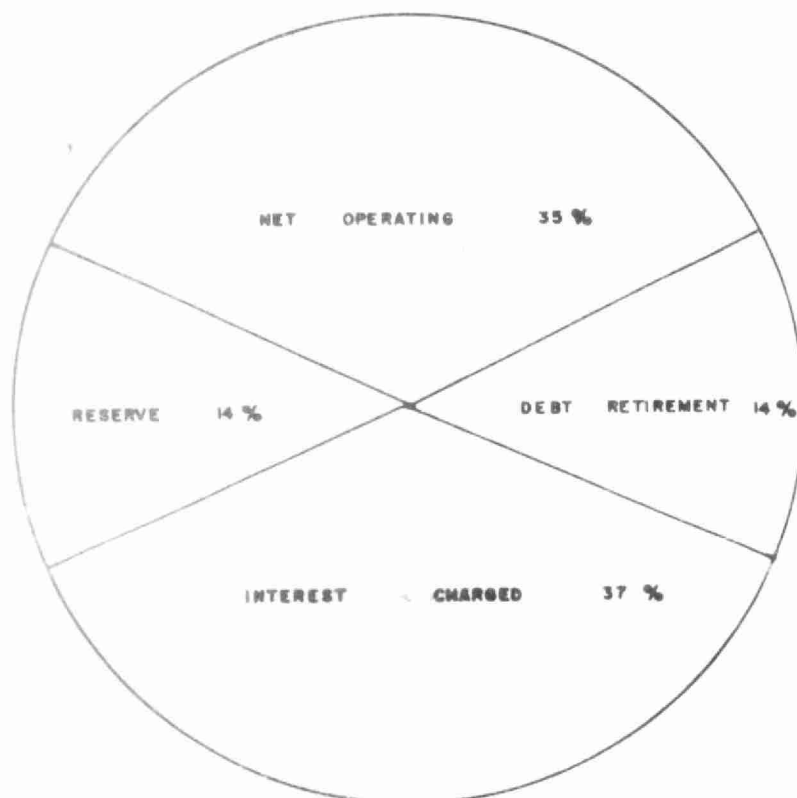
YEAR	M.G. TREATED	TOTAL COST	COST PER FAMILY PER YEAR	COST PER MILLION GALLONS
1965	562,759	\$29310.65	* \$12.21	\$52.08
1966	762,339	32057.25	13.46	42.05

* BASED ON ANNUAL POPULATION ESTIMATE AND 3.9 PERSONS PER FAMILY

1966 OPERATING COSTS



TOTAL ANNUAL COST



Process Data

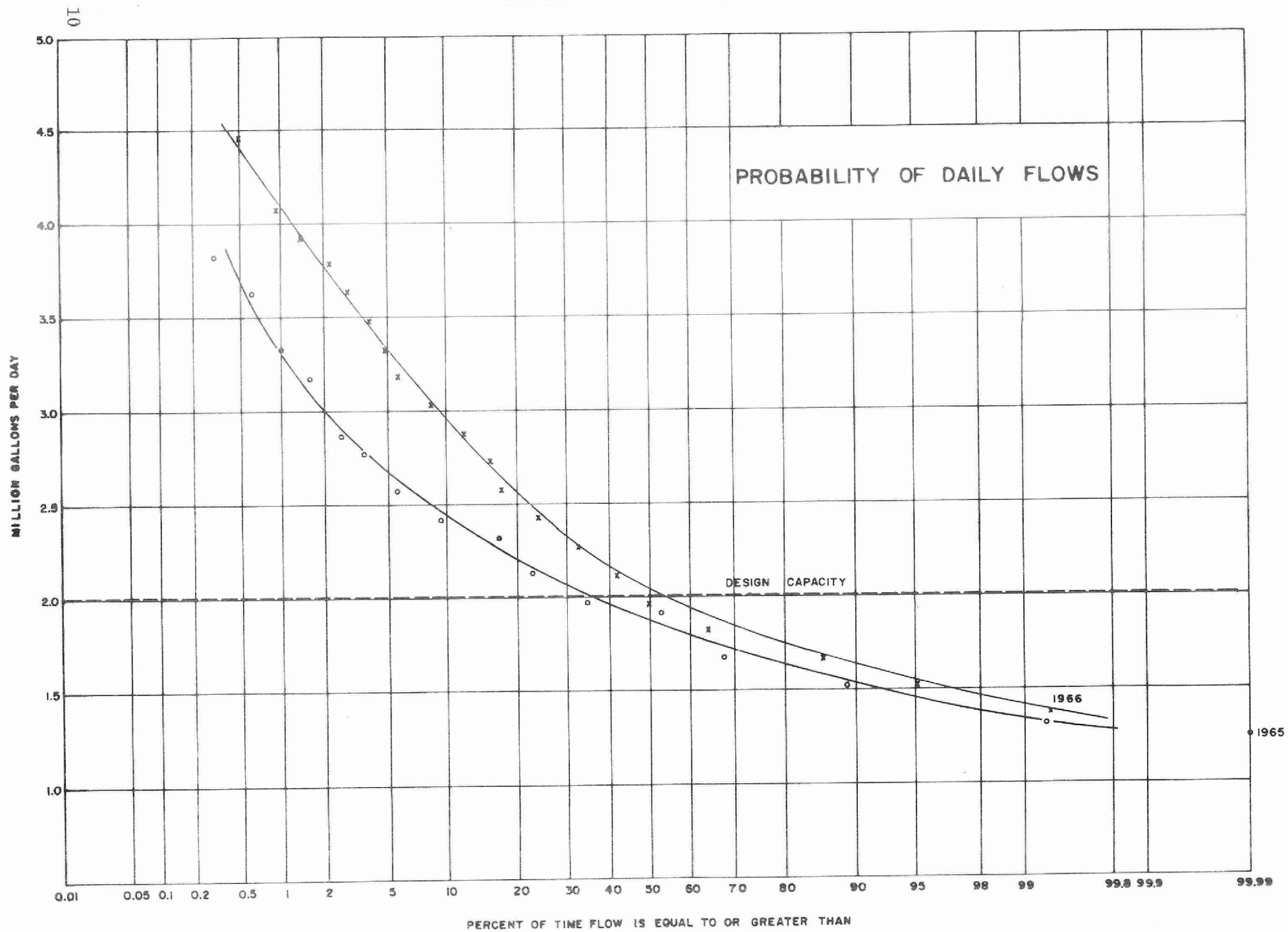
DAILY AVERAGE FLOW

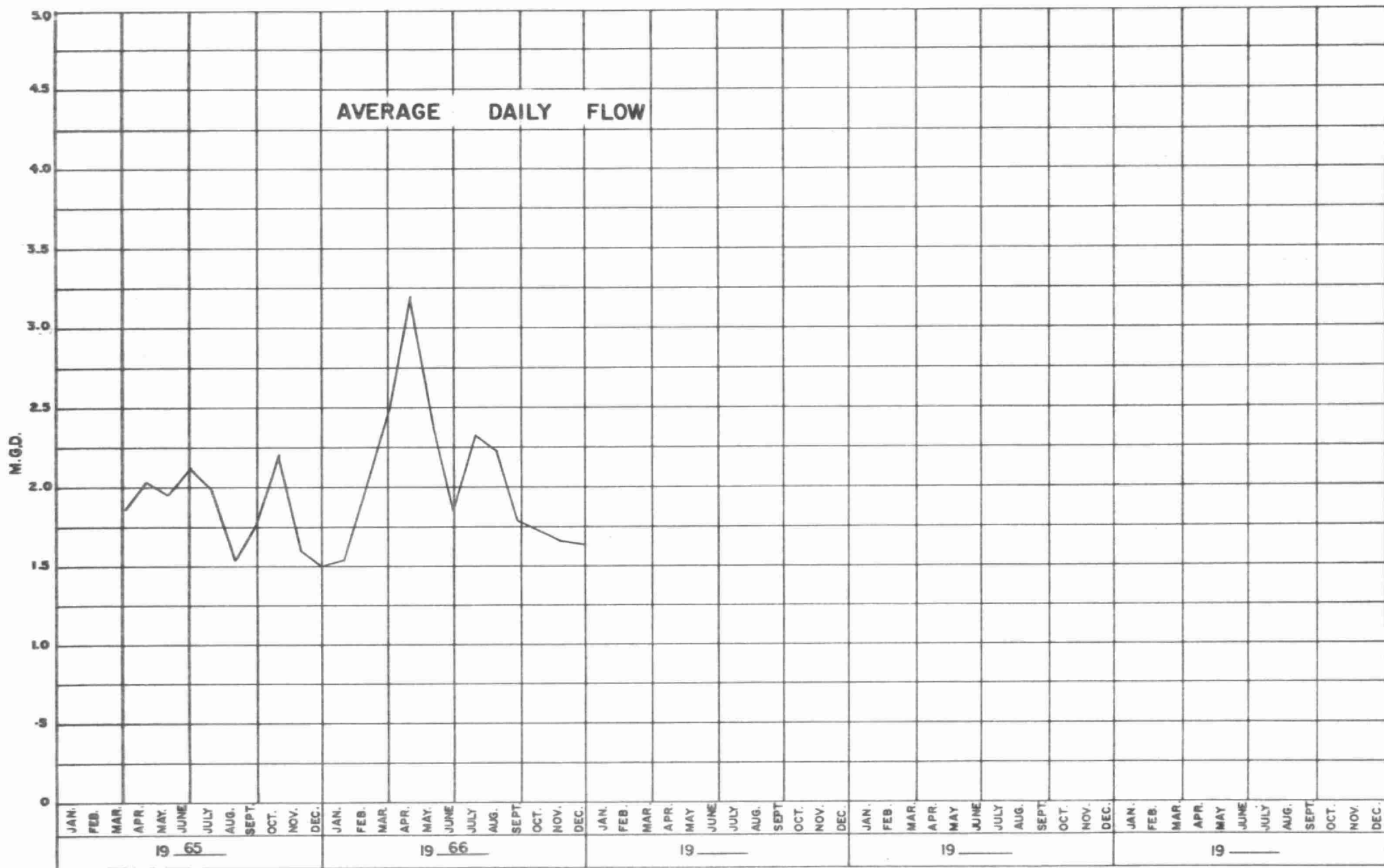
The high daily average flows during the spring and fall months would indicate possible infiltration into the sewer system.

PROBABILITY PLOT

This graph shows that the plant is hydraulically loaded beyond its design capacity approximately 50% of the time.

However, it would appear that this overloading is caused by surface water entering the sewer system.





GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	-	-	-	-	-	-	-	-	-
FEB.	-	-	-	-	-	-	-	-	-
MAR.	-	-	-	-	-	-	-	-	50
APR.	-	-	-	-	-	-	-	-	-
MAY	-	-	-	-	-	-	-	-	30
JUNE	-	-	-	-	-	-	-	-	40
JULY	118	66	44.0	18.5	-	-	-	-	40
AUG.	59	28	52.5	11.7	-	-	-	-	30
SEPT.	61	30	51.0	8.3	-	-	-	-	30
OCT.	76	27	64.5	13.2	154	22	85.5	35.4	-
NOV.	54	27	50.0	6.7	-	-	-	-	-
DEC.	60	28	53.5	8.1	70	22	68.5	12.2	45
TOTAL	-	-	-	*141.0	-	-	-	*343.0	265
AVG.	71	34	52.0	11.8	112	22	80.5	28.6	22

* Yearly values are estimated on samples available.

COMMENTS

An average BOD strength of 71 ppm and SS of 112 ppm indicate a weak sewage.

The percentage reductions of both BOD and SS are normal for this type of plant.

DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	
JAN.	3.60	-	-	4.86	-	-	41.56
FEB.	4.87	-	-	0.32	-	-	40.26
MAR.	6.99	-	-	1.13	-	-	* 16.44
APR.	14.49	-	-	0.81	-	-	-
MAY	3.81	-	-	0.81	-	-	-
JUNE	7.40	-	-	1.30	-	-	** 43.40
JULY	8.65	-	-	1.13	-	-	86.25
AUG.	6.94	-	-	1.13	-	-	71.18
SEPT.	7.31	-	-	0.81	-	-	78.37
OCT.	19.15	-	-	0.97	-	-	139.97
NOV.	10.32	-	-	1.46	-	-	114.13
DEC.	7.43	-	-	1.30	2.04	1.17	105.88
TOTAL	100.96	-	-	16.03	-	-	+978.64
AVG.	8.41	-	-	1.34	2.04	1.17	81.55

* 13 days production. Meter out of service.

** 19 days production. Meter returned to service.

+ Prorated on available data.

COMMENTS

The raw sewage is comparatively weak. This results in smaller amounts of raw sludge being pumped to the digester, and in a low rate of gas production.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	47.182	-	-
FEBRUARY	56.520	-	-
MARCH	76.711	-	-
APRIL	96.178	-	-
MAY	73.764	* 956	2.36
JUNE	57.757	1941	3.36
JULY	71.151	2361	3.32
AUGUST	75.385	2318	3.07
SEPTEMBER	53.401	2178	4.08
OCTOBER	53.680	1881	3.50
NOVEMBER	49.735		
DECEMBER	50.875		
TOTAL	762.339	11635	-
AVERAGE	63.528	1939	3.31

*17 days' chlorination

COMMENTS

The plant effluent is chlorinated during the summer months. A total of 11,635 pounds of chlorine were used at an average dosage of 3.31 ppm. This is a lower dosage than normal, again an indication of weak sewage.



CONCLUSIONS

The operational and maintenance routines are now well established at the plant. The result is an efficient and economical operation.

The plant is hydraulically overloaded approximately 50% of the time. However, due to the weak strength of the sewage, a reasonable level of treatment efficiency is maintained.

Laboratory procedures have now been established, enabling tighter process control to be maintained.

RECOMMENDATIONS

Consideration should be given to the installation of a new water main to the plant at an accessible level. The present main, which frequently requires repairs, is buried at depths of up to 18 feet.

Date Due

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